TOSHIBA

TOSHIBA AMERICA INFORMATION SYSTEMS
STORAGE DEVICE DIVISION
IRVINE, CALIFORNIA

SD-M1912
DVD-ROM DRIVE
USER MANUAL

TOSHIBA

CONTENTS

Introduction.....1

Setup 3

Using the DVD-ROM Drive 6

Troubleshooting.....9

Specifications 10

Drive Connectors.....14

TOSHIBA

INTRODUCTION – SD-M1912 DVD-ROM Drive

General Features

Tray Loading Mechanism

3-way Disc Eject (eject button, software, emergency eject hole)

Average Random Access Time

CD-ROM	90ms
CD-RW	90ms
DVD (single)	93ms
DVD (dual)	115ms
DVD-RAM	200ms

DAE (Digital Audio Extraction) Audio Capability

MPC3 Compatibility

Multi-Read Capability

Regionalization (RPC2 compliance) (DVD)

ATAPI BUS Interface:

Drive Speed

CD-ROM/R	48X
CD-RW	32X
DVD	16X Single Layer
	10X Dual Layer
DVD-R/RW	6X
DVD-RAM	2X

Types of Disc Formats Supported

DVD

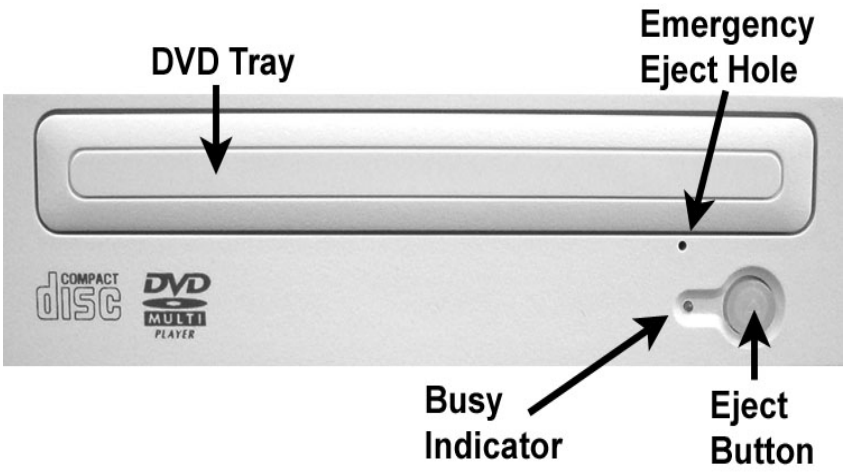
- DVD-ROM (Book 1.02)
- DVD-Video (Book 1.1)
- DVD-R (Book 1.0, 3.9G)
- DVD-R (Book 2.0, 4.7G) – General & Authoring
- DVD-RW

CD

- CD-DA (Red Book) – Standard Audio CD & CD-Text
- CD-ROM (Yellow Book) – Standard Data
- CD-ROM-XA – Photo CD, Multi-Session
- CD-I/FMV (Green Book)
- CD-Extra/CD-Plus (Blue Book) – audio & text/Video
- Video-CD (White Book) – MPEG1 Video

Front Panel

Figure 1.SD-M1912 DVD-ROM Drive Front Panel



Eject Button	The Eject button is used to open the disc tray so you can install or remove a disc.
Busy Indicator	When you install a disc into the DVD-ROM drive, the BUSY light flashes slowly as it attempts to locate the disc. One of the following will occur: • BUSY light goes out. The DVD-ROM drive is ready to read data from the disc. • BUSY light flashes slowly. The disc may be dirty. • BUSY light remains ON. The DVD-ROM is accessing data. • BUSY light remains ON indefinitely. The DVD-ROM is experiencing an error
Emergency Eject Hole	The emergency eject hole is to be used only when the Loading Tray will not open when Eject button is pressed.
Loading Tray	Load disc using tray.

TOSHIBA

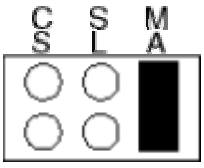
SETUP – SD-M1912 DVD-ROM

The following steps must be performed to properly install your drive:

- Set Drive Jumper Settings
- Connect Audio Cable (optional)
- Attach IDE BUS Cable
- Attach Power Cable
- Mount Drive

Jumper Settings

The mode select jumpers are 6 straight angle pins located on the rear of the DVD-ROM drive.
By placing a jumper on the pins, you can select the following functions:



CS	Drive is configured using host interface signal CSEL
SL	Configures drive as Slave
MA	Configures drive as Master (default mode)

Figure 1.Mode Select Jumper

In most installations, jumper should remain in the MA position (factory default). It is recommended that you install your DVD-ROM drive only on the secondary IDE BUS. If you are installing on primary IDE BUS, your hard drive would then be the Master, and you should set your DVD-ROM drive to the Slave position (SL)

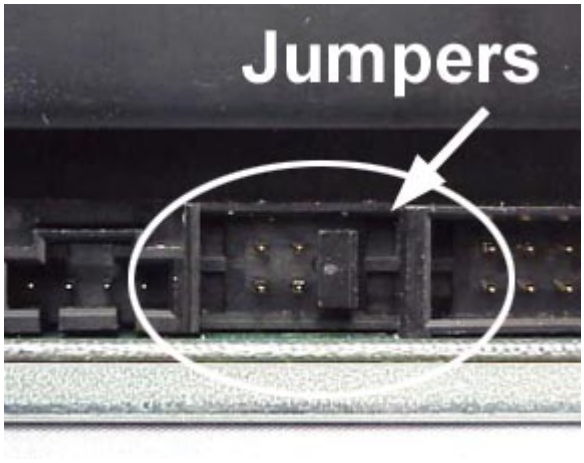


Figure 2.Jumper Locations

Placing DVD-ROM Drive inside your Computer

Now that you have set the jumpers, you are ready to install your DVD-ROM drive inside your computer.

Important Note: Disconnect power from your computer system before beginning installation.

Remove computer cover and faceplate if required. Refer to your computer systems manual for removal information. If the DVD-ROM drive is replacing a CD-ROM or DVD-ROM, remove drive presently installed in your system.

Your Toshiba DVD-ROM drive can be placed in any free half-height drive slot at the front of your computer. (It can be mounted horizontally or vertically.)

Carefully start sliding the DVD-ROM drive into the opening with the disc tray facing the front of the computer. Before you push the drive all the way in you will need to connect the IDE BUS cable, Audio cable and the Power cable on the back of the drive.

Connecting Cables

IDE BUS Cable *(not supplied with drive)* - Your computer system should have a primary and secondary IDE BUS, cable with your Hard Drive most likely being the Master on the primary BUS. Connect BUS cable as follows, assuring that pin 1 of cable (side with red stripe) is connected to pin 1 of the DVD-ROM drive's interface connector:

If you are replacing your CD-ROM or DVD:
connect DVD-ROM drive to the BUS Cable connector that the CD-ROM or DVD was connected to.

If DVD-ROM drive is not replacing a CD-ROM/DVD or is an addition to a CD-ROM/DVD:
connect DVD-ROM drive to an open connector on the secondary IDE BUS cable (not supplied with drive).

If DVD-ROM drive *is to be slave on Primary BUS:*
connect DVD-ROM drive to open connector on the primary IDE BUS cable (not supplied with drive).

Figure 3.Installing BUS Cable

Power Cable - Connect an internal computer power supply cable to the power socket at the back of the DVD-ROM drive. One side of the plug has chamfered edges, so the power connector fits only one way. Push plug completely into the socket making sure the plug fits correctly.

Figure 4.Installing Power Cable

Audio Cable *(optional)* - If you have a sound card and speakers, and would like to play audio CDs on your computer, you will need to install a CD/DVD audio cable. Toshiba's DVD-ROM drives use a standard 4-pin audio cable that can be purchased from most local computer suppliers. The sound cable connects to your sound card at one end and the other end connects to the digital audio connector at the left rear of the DVD-ROM drive (see DVD-ROM drive Back Panel photo for location). Refer to the instructions that came with your sound card for details on any sound-driver software required.

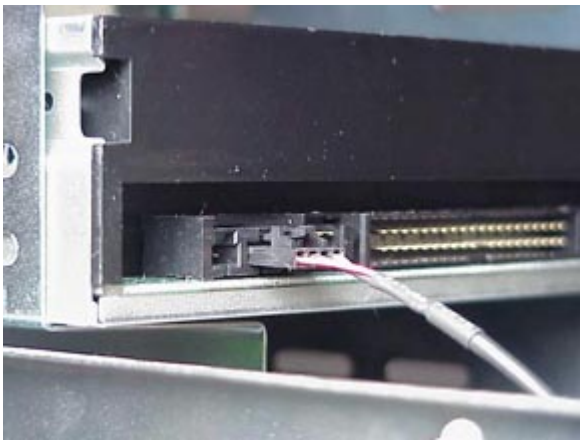


Figure 5.Installing Audio Cable

Completing Installation

After you have connected all the necessary cables, push the DVD-ROM drive completely into the computers drive slot. Mount drive per your computers instructions. The screw length should not exceed 30.5mm (measured from outside surface of side or bottom of drive to tip of screw). Replace computer cover and all outer screws.

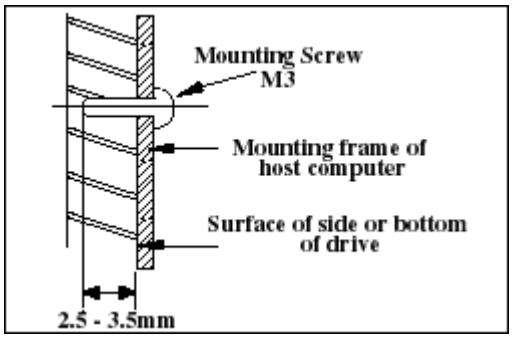


Figure 6.Mounting Illustration

Software Driver - Toshiba's optical drives do not require any unique device drivers for Windows '95/'98/2000/Me/XP/NT. After installing your drive and re-booting, your system should recognize your drive. Windows '95/'98/2000/Me/XP/NT Operating Systems support all Toshiba optical drives natively If you prefer using DOS, download the DOS ATAPI driver from our web site.

TOSHIBA

USING THE DVD DVD-ROM Drive – SD-M1912

Drive Operation

Inserting a Disc - Horizontally

To insert a disc into a drive that is mounted horizontally, perform the following steps:

Figure 1.Inserting Disc

1. Open the drive's Loading tray by pressing the Eject Button.
2. Place disc into drive's Loading tray
3. Press Eject button again or gently push on the open disc tray. Tray will automatically close.

Inserting a Disc - Vertically

To insert a disc in a drive that is mounted vertically, perform the following steps:

1. Locate sliding disc holders (4 locations) on drive's Loading Tray.
2. Position the disc behind the disc holders
3. Close the drive by gently pushing in the tray or pressing the eject button.

Figure 2.Inserting Disc Vertically

Removing a Disc

To remove a disc from the DVD-ROM drive, perform the following steps:

1. Open the Loading Tray by pressing the Eject Button.
2. Grasp disc by edges, and lift out of loading tray.
3. Press Eject Button again to close Loading Tray.

Usage Guidelines

- Keep the disc tray closed when not using the DVD-ROM Drive.
- Do not press down on the disc tray when opening or closing it.
- Do not place objects on the disc tray.
- Never use a damaged, broken, or deformed disc.
- Do not press the Open/Close button while the drive is playing a DVD movie or accessing a disc. To stop a DVD movie, click Stop button in the DVD player application program.

NOTE: High-speed drives spin the disc at a high rotational speed. If a disc has printing on only half of the disc, or if there is a slight imbalance in the disc, the imbalance is greatly magnified by the high speed, causing the drive to vibrate or produce a fan-like noise. These effects are inherent in the high-speed technology and do not indicate a problem with the drive.

Emergency Ejection

CAUTION: The following procedure is intended only as a last resort when pressing the eject button fails to open the Loading Tray

1. Turn computer power OFF by properly shutting down system.
2. Insert a solid bar (i.e. large paper clip) into Emergency Eject hole and push as shown in the picture below
3. DVD tray will open/eject.

Figure 3.Using Emergency Eject

This procedure cannot be repeated without cycling the DVD-ROMs (computer's) power.
After the media is removed and the loading tray is closed, the tray will not reopen without first turning the power ON/OFF.

NOTE: Use a bar that is less than 1.5 mm in diameter.
Do not insert more than 50mm in depth.
Inserting more than 50mm may damage the DVD-ROM drive.

Handling Media

DVD media is sensitive to dust and fingerprints. Carefully handle media by its edges only. If a DVD movie skips or hangs during playback, clean the media. Most DVD video playback issues are media-related and can be remedied by proper handling and care of media.

Cleaning Media

Try to avoid touching the read area (underside) of the disc as dirt and smears will degrade the disc accessing speed.
If the disc becomes dirty wipe it with a damp soft cloth. Avoid cleaning in a circular motion, but rather from the inner side outward.

TOSHIBA

TROUBLESHOOTING – SD-M1912

Problem	Solution
Disc tray cannot be opened	• Check that there is power to drive. • Use Emergency Eject instructions to open tray.
Drive is not recognized by system	• Is the drive connected properly? Are all cables plugged in properly (e.g. Power Cable, Interface Cable and Audio Cables). • Are the drive configuration jumpers on the DVD-ROM drive set properly? • Is the software driver loaded? On a step-by-step (F8) Boot of the system is the DVD-ROM drive recognized? (BIOS / DOS reports "device driver not found" or "no valid drivers selected.). If not, Contact Technical Support. • Has the DVD-ROM drive software driver been corrupted by a virus. Run a Virus Scan program and repair if possible. Contact Technical Support if the Virus renders the DVD-ROM drive software drivers not useable.
Drive is not recognized by system during Boot process, but is recognized by the Operating System (i.e. XP, Win2000, Win98, Win NT, etc.)	• Is the DVD-ROM drive software driver loaded? On a step-by-step (F8) Boot of the system is the DVD-ROM drive recognized? (BIOS / DOS reports "device driver not found or no valid DVD drivers selected.). If not, Contact Technical Support. • Has the Windows DVD-ROM drive software driver program been corrupted by a virus. Run a Virus Scan program and repair if possible. Contact Technical Support if the Virus renders the software drivers not useable.
BUSY Indicator LED flashes slowly	• The disc may be dirty Clean it with a soft damp cloth. Avoid cleaning the disc using a circular motion. The disc should be wiped in a radial direction. That is, from the inner side outward. • The laser lens may have become cloudy or blocked by particulate matter. Please contact Technical Support.
BUSY Indicator LED is constantly ON	• Possible Hardware Problem. Please contact Technical Support.
DVD-ROM can not play a DVD in the drive or certain types of CD media (i.e. CD-plus, etc.)	• Is the DVD-ROM drive driver loaded • Is the DVD disc the correct format for the type of system that you are using? (i.e. on a PC an ISO9660 IBM compatible PC format as opposed to Apple/Mac HFS disc or UNIX disc formats which will not function). • Do you have the correct software applications program/drivers installed to run a DVD disc? • Has the Windows DVD-ROM drive software driver program been corrupted by a virus. Run a Virus Scan program and repair if possible. Contact Technical Support if the Virus renders the software drivers not useable.

TOSHIBA

SPECIFICATIONS –SD-M1912

General

Interface	ATAPI
Format Compatibility	
DVD	DVD-ROM (Book 1.02) DVD-Video (Book 1.1) DVD-R (Book 1.0, 3.9G) DVD-R (Book 2.0, 4.7G) - General & Authoring DVDRW
CD	CD-DA (Red Book) - Standard Audio CD & CD-TEXT CD-ROM (Yellow Book Mode1&2) - Standard Data CD-ROM XA (Mode2 Form 1&2) - Photo CD, Multi-Session CD-I/FMV (Green Book, Mode2 Form1&2, Ready, Bridge) CD-Extra/CD-Plus (Blue Book) - Audio & Text/Video Video-CD (White Book) - MPEG1 Video
Media Compatibility	
DVD	9/10/18G DVD-Single/Dual (PTP,OTP) (Read Only) 3.9/4.7G DVDR (Read Only) DVDRW (Read Only, 80mm DVD (Horizontal Mount Only) DVD-RAM (V1.0/2.0/2.1)
CD	120mm CD-ROM (Read Only) 80mm CD (Horizontal Mount Only) 800/700/650/550MB CD-Recordable (Read) 80mm CD-Recordable (Read/Horizontal Mount Only) 700/650MB CD-Rewritable (Read) 700/650MB High Speed CD-Rewritable (Read) Ultra Speed CD-Rewritable (Read) 80mm CD-Rewritable (Read/Horizontal Mount Only)

Performance

Read Speed

CD-DA (Audio Play)	CAV 16X
CD-DA (DAE)	CAV 32X
Mixed Media	
Audio	CAV 32X (DAE, CAV 16X (Audio Play)
Data	CAV 48X (Max)
Video-CD	CAV 16X
DVD-Video Play	CAV 8X
DVD-R, DVDRW Read	CAV 6X
DVD-RAM	ZCLV 2X

Sustained Transfer Rate

DVD (Single)	21,600 KBytes/s
DVD (Dual)	10,800 KBytes/s
DVD-R, DVD-RW	8,100 KBytes/s
DVD-RAM	2,704 KBytes/s
CD-ROM/R (Mode 1)	7200 KBytes/s
CD-RW (Mode 1)	4,800 KBytes/s

Burst Rate	16.7 Mbyte/s (PIO Mode 4) 16.7 Mbyte/s (multiple word DMA transfer mode 2) 33.3 MByte/s (Ultra DMA)

Random Access Time

DVD (Single)	93ms
DVD (Dual)	115ms
DVD-RAM	200ms
CD-ROM/CD-RW	90ms

Spin-up Time

CD/DVD	5sec Typ
Lead IN (1 session)	7.5sec (CD/DVD single, Type) DVD Dual (10.5 typ)

Spin-Down Time

CD/DVD	3.7sec (Typ)
Spin Down & Eject	6sec (Typ)

Memory Buffer	512Kbytes

Audio

Frequency Response	20Hz to 20,000 Hz
Total Harmonic Distortion	1KHz, 30KHz LPF ON (0.15%, Max)
Output Levels	
Headphone	0dB 1KHz CD Reference Track 0.7V20% (Max)
Signal to Noise Ratio	1KHz, IEC179 A-Weighted ON (75dB Min)
Channel Separation	1KHz, 30KHz LPF ON (65dB Min)

Environmental

Ambient Temperature

Operating	5° to 45° C (41° to 113° F)
Storage	-25° to 60° C (-13° to 140° F)

Relative Humidity

Operating	10% to 80%
Storage	10% to 90%

Vibration

Operating	0.45G/ 5~500Hz
Non-operating	2G/5~500Hz

Shock

Operating	6G/11ms, 63G/2ms
Non-operating	160G/2ms

Acoustical Noise 52dBA Under (STD-200 Disc)

Power

DC Voltage and Current Requirements 5V 5%, 12V 10%

	+5V	+12V
Sleep	65/95	20/5-0mA
Standby	90/120	20/60
Idle	500/1000	300/600
Random Access (average)	600/1400	700/1200

Physical

Height	1.65" (42mm)
Width	5.83" (148.2mm)
Depth	7.24" (193mm)
Weight	1.98lbs (.74kg)

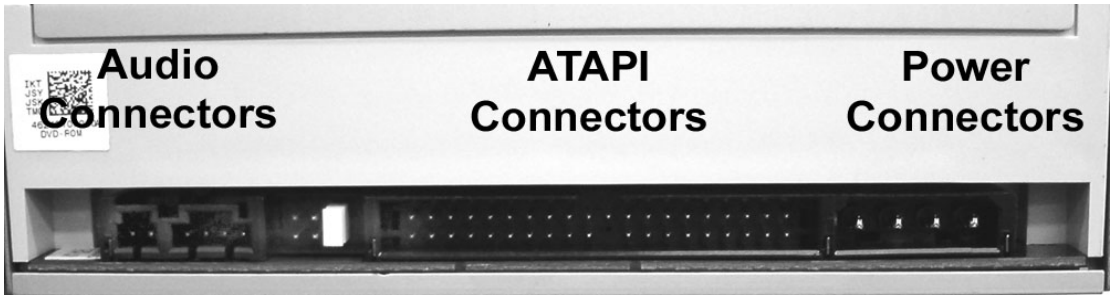
Regulatory

The SD-M1912 DVD-ROM drive has been certified by the following regulatory agencies:

- UL 1950
- CSA C22.2 No. 950
- TUV (EN60950I)
- CE standard
- CB
- DHHS 21 CFR Sub-Chapter J
- BSMI

DRIVE CONNECTORS –SD-M1912

Figure 1.SD-M1912 DVD-ROM Drive Rear Panel - Connectors



Power Connector Power is supplied to your DVD-ROM drive by the connection with your computer's +5V/+12V power cable to the power socket at the back of drive. One side of the plug has chamfered edges, so the power connector fits only one way

CAUTION: Severe damage to the Drive circuits may occur if power cable is plugged in upside-down with power ON.

Audio Connectors Supplies Analog and Digital sound to your system

ATAPI Connector The SD-M1912 DVD drive is connected to your computer system through the ATAPI connector.

Table 1.Interface Pin Assignments

INTERFACE PIN ASSIGNMENT							
PIN NO.	**I/O**	**SIGNAL NAME**	**HOST SIGNAL NAME**	**PIN NO.**	**I/O**	**SIGNAL NAME**	**HOST SIGNAL NAME**
1	I	Reset	Host Reset	21	O	HDRQ	DMA Request
2	-	GND		22	-	GND	
3	I/O	HD7	Host Data Bus BIT 7	23	I	HWR-,STOP	Host I/O Write
4	I/O	HD8	Host Data Bus BIT 8	24	-	GND	
5	I/O	HD6	Host Data Bus BIT 6	25	I	HRD-, HDMARDY, -HSTROBE	Host I/O Read
6	I/O	HD9	Host Data Bus BIT 9	26	-	GND	
7	I/O	HD5	Host Data Bus BIT 5	27	O	IORDY, DDMARDY,-DSTROBE	I/O Channel Ready
8	I/O	HD10	Host Data Bus Bit 10	28	-	CSEL	Cable Select
9	I/O	HD4	Host Data Bus BIT 4	29	I	HDAK-	DMA Acknowledge
10	I/O	HD11	Host Data Bus BIT 11	30	-	GND	
11	I/O	HD3	Host Data Bus BIT 3	31	O	INTRQ	Host Interrupt Request
12	I/O	HD12	Host Data Bus BIT 12	32	O	IOCS16-	Host 16 BIT I/O
13	I/O	HD2	Host Data Bus BIT 2	33	I	HA1	Host Address Bus BIT 1
14	I/O	HD13	Host Data Bus BIT 13	34	I/O	PDIAG-	Passed Diagnostics
15	I/O	HD1	Host Data Bus BIT 1	35	I	HA0	Host Address Bus BIT 0
16	I/O	HD14	Host Data Bus BIT 14	36	I	HA2	Host Address Bus BIT 2
17	I/O	HD0	Host Data Bus BIT 0	37	I	HCS1	Host CHIP Select 0
18	I/O	HD15	Host Data Bus BIT 15	38	I	HCS3	Host CHIP Select 1
19	-	GND		39	I/O	DASP-	Drive Active/Drive 1 Present
20	-	(KEYPIN)		40	-	GND	